



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

THYROID DISORDERS AND POLYCYSTIC OVARY SYNDROME

KEY WORDS: Women, T₄, T₃, TSH, PCOS

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ABSTRACT

BACKGROUND: To study the thyroid profile in polycystic ovarian syndrome. **METHODS:** 100 cases of women with PCOS based on Rotterdam's criteria and an equal number of age-matched controls (women without PCOS) were included in the study. **RESULTS:** T₄ level was significantly lower in PCOS group (0.81 ± 0.67 ng/ml) as compare to control (1.93 ± 0.90 ng/ml). T₃ level was significantly higher in PCOS group (2.42 ± 1.13 ng/ml) as compare to control (2.09 ± 1.11 ng/ml). TSH level was significantly higher in PCOS group (8.13 ± 7.12 ng/ml) as compare to control (3.49 ± 1.10 ng/ml). **CONCLUSION:** High prevalence of thyroid disorders in PCOS patients thus points towards the importance of early correction of hypothyroidism in the management of infertility associated with PCOS.

INTRODUCTION

Dysfunction and anatomic abnormalities of the thyroid are among the most common diseases of the endocrine gland. Abnormalities in the supply of thyroid hormone to the peripheral tissue are associated with alteration in a number of metabolic processes. Early stages of thyroid dysfunction (before symptoms are obvious) can lead to subtle change in ovulation and endometrial receptivity, which may have profound effect on fertility. Infantile hypothyroidism if untreated, leads to sexual immaturity. Untreated juvenile hypothyroidism causes a delay in the onset of puberty followed by anovulatory cycles. In adult woman, severe hypothyroidism may be associated with diminished libido and failure of ovulation. Primary ovarian failure can also be seen in patients with Hashimoto's thyroiditis as a part of autoimmune polyglandular syndrome. Rarely, in primary hypothyroidism, secondary depression of pituitary function may lead to ovarian atrophy and amenorrhoea.¹⁻³

MATERIAL & METHODS

Type of Study : Observational study

CASE: Women with PCOS which were diagnosed by Rotterdam's Criteria were cases.

Inclusion Criteria

- Age group - 13-45 years.
- Giving written informed consent

Exclusion Criteria

- Women on OCPs
- Women on steroids
- Hyperprolactinemia
- Congenital Adrenal Hyperplasia
- Cushing's Syndrome
- Virilizing tumor of ovary
- Vitiligo
- Endometriosis

CONTROL: Women of the same age group visiting OPD with problems unrelated to Rotterdam's Criteria of PCOS were controls.

Inclusion Criteria

- Age group - 13-45 years.
- Giving written informed consent

Exclusion Criteria

- Menstrual irregularity
- Hyperandrogenism
- With polycystic ovaries
- Insulin resistance

- Inflammatory and autoimmune disease
- Metabolic abnormalities

RESULTS

Table - 1. Risk of Thyroid Disorder in PCOS and Control Group

Group	With Thyroid Disease		Without Thyroid Disease	
	No.	%	No.	%
PCOS	37	37.00	63	63.00
Control	9	9.00	91	91.00

37.00% PCOS cases were present with thyroid disorder.

Table - 2. Thyroid function test

Variables	Cases		Controls		p-value
	Mean	SD	Mean	SD	
T ₃	2.42	1.13	2.09	1.11	0.07
T ₄	0.81	0.67	1.93	0.90	0.001
TSH	8.13	7.12	3.49	1.10	0.001

T₄ level was significantly lower in PCOS group (0.81 ± 0.67 ng/ml) as compare to control (1.93 ± 0.90 ng/ml). T₃ level was significantly higher in PCOS group (2.42 ± 1.13 ng/ml) as compare to control (2.09 ± 1.11 ng/ml). TSH level was significantly higher in PCOS group (8.13 ± 7.12 ng/ml) as compare to control (3.49 ± 1.10 ng/ml).

DISCUSSION

Patients with PCOS often have defective progesterone secretion which leads to an increased estrogen to progesterone ratio. Oestrogen can increase the expression of IL-6 in T cell and inhibitory action of progesterone may leads to over stimulated immune system and makes these patients more prone to autoimmune disorder.⁴

T₄ level was significantly lower in PCOS group (0.81 ± 0.67 ng/ml) as compare to control (1.93 ± 0.90 ng/ml). T₃ level was significantly higher in PCOS group (2.42 ± 1.13 ng/ml) as compare to control (2.09 ± 1.11 ng/ml). TSH level was significantly higher in PCOS group (8.13 ± 7.12 ng/ml) as compare to control (3.49 ± 1.10 ng/ml). Similar results were reported by Sinha U et al (2013).⁵ In our study mean serum TSH level was found to be significantly higher in PCOS group and in control group. Significant difference was found between two groups. Similar correlation between TSH and Anti-TPO antibody level was reported by Janssen OE et al (2004).¹

CONCLUSION

High prevalence of thyroid disorders in PCOS patients thus points towards the importance of early correction of hypothyroidism in the management of infertility associated with PCOS.

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